

CLAIMS

I claim:

1. An isolated polypeptide comprising the amino acid sequence as shown in SEQ ID NO:2 from residue 35 to residue 282.
2. The isolated polypeptide according to claim 1, further comprising the amino acid sequence from residue 35 to residue 305 as shown in SEQ ID NO:2.
3. The isolated polypeptide according to claim 1, further comprising the amino acid sequence from residue 35 to residue 334 as shown in SEQ ID NO:2.
4. The isolated polypeptide according to claim 1, further comprising the amino acid sequence from residue 1 to residue 334 as shown in SEQ ID NO:2.
5. An isolated nucleic acid molecule comprising the nucleotide sequence as shown in SEQ ID NO:1 from nucleotide 144 to nucleotide 887.
6. The isolated nucleic acid molecule according to claim 5, further comprising the nucleotide sequence from nucleotide 144 to nucleotide 956 as shown in SEQ ID NO:1.
7. The isolated nucleic acid molecule according to claim 5, further comprising the nucleotide sequence from nucleotide 144 to nucleotide 1046 as shown in SEQ ID NO:1.
8. The isolated nucleic acid molecule according to claim 5, further comprising the nucleotide sequence from nucleotide 42 to nucleotide 1046 as shown in SEQ ID NO:1.
9. A vector, comprising the isolated nucleic acid molecule of claim 5.
10. The vector according to claim 9, further comprising an affinity tag.
11. An expression vector, comprising the isolated nucleic acid molecule of claim 5, a transcription promoter, and a transcription terminator, wherein the promoter is

operably linked with the nucleic acid molecule, and wherein the nucleic acid molecule is operably linked with the transcription terminator.

12. A recombinant host cell comprising the expression vector of claim 11, wherein the host cell is selected from the group consisting of bacterium, yeast cell, fungal cell, insect cell, avian cell, mammalian cell, and plant cell.

13. A method of using the expression vector of claim 11 to produce a protein, comprising culturing recombinant host cells that comprise the expression vector and that produce the protein.

14. The method of claim 13, further comprising isolating the protein from the cultured recombinant host cells.

15. The protein produced by the method of claim 14.

16. An antibody or antibody fragment that specifically binds with the polypeptide of claim 1.

17. The antibody of claim 16, wherein the antibody is selected from the group consisting of: (a) polyclonal antibody, (b) murine monoclonal antibody, (c) humanized antibody derived from (b), and (d) human monoclonal antibody.

18. A method of producing an antibody comprising the following steps in order:

inoculating an animal with a polypeptide selected from the group consisting of:

(a) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from residue 35 to residue 282;

(b) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from residue 35 to residue 305;

(c) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from residue 35 to residue 334; and

(d) a polypeptide consisting of the amino acid sequence of SEQ ID NO:2 from residue 1 to residue 334;

wherein the polypeptide elicits an immune response in the animal to produce the antibody; and isolating the antibody from the animal.

19. A method of detecting the presence of *Zsig47* gene expression in a biological sample, comprising:

(a) contacting a *Zsig47* nucleic acid probe under hybridizing conditions with either (i) test RNA molecules isolated from the biological sample, or (ii) nucleic acid molecules synthesized from the isolated RNA molecules, wherein the probe consists of a nucleotide sequence comprising a portion of the nucleotide sequence of the nucleic acid molecule of claim 5, or complements thereof, and

(b) detecting the formation of hybrids of the nucleic acid probe and either the test RNA molecules or the synthesized nucleic acid molecules,

wherein the presence of the hybrids indicates the presence of *Zsig47* RNA in the biological sample,

or,

(a') contacting the biological sample with an antibody, or an antibody fragment, which specifically binds with a polypeptide consisting of the amino acid sequence of SEQ ID NO:2, wherein the contacting is performed under conditions that allow the binding of the antibody or antibody fragment to the biological sample, and

(b') detecting any of the bound antibody or bound antibody fragment.

20. The method of claim 19, wherein the biological sample is from appendix tissue.

21. A fusion protein, comprising the polypeptide of claim 1.